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U.S. DEPARTMENT OF AGRICULTURE

B P I S A E

RESEARCH ACTIVITIES

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PLANT INDUSTRY STATION, BELTSVILLE, MD.

MARCH 1949

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Brannan Stresses Value of Plant Introduction

In a talk given at Des Moines, Iowa, February 19, Secretary Brannan stressed the benefits to be obtained by the exchange of agricultural plant material. . . "We are prone to forget the two-way nature of exporting 'know how.' We ourselves have profited immensely by the introduction of foreign plants and grasses. There is not one major agricultural crop grown by us today that is native to the United States. Even corn was first introduced from tropical America by migrating Indians. Alfalfa originated in southwestern Asia, was introduced by the Spanish conquerors in South America, and came to us about a century ago.

"Parent stock for our new high yielding varieties of oats, which are resistant to crown rust, came from South America and Australia.

"Our rice industry is based upon plant varieties introduced from abroad or bred from introduced varieties.

"Lespedeza came from the Orient, the Washington navel orange from Brazil, the Meyer lemon from China, some of our best parent lines of potatoes from Germany.

"The work of searching out new varieties which can be crossbred to increase yields or resistance to disease is so important that in recent years we have sent no less than five plant collecting expeditions to different parts of the world. What will result from this intensive exploration time alone will tell. But it has been estimated that less than half the potential agricultural plants which could grow here have had an opportunity to do so.

"Obviously, then, we too stand to benefit enormously by an exchange of knowledge and agricultural materials. Our needs in plant life are mainly for "raw" plant materials. The requirements of other nations are mainly for improved varieties. The Government of Italy, for example, is much interested in hybrid corn. Thus there is a natural avenue for collaboration. We are today an important exporter of improved plant varieties. Unfortunately, in the past, there has been little opportunity to learn how our plants have fared when used upon other soils."

Breeding Onions for Hybrid Seed Production

Four new hybrid onions developed in the Federal-State breeding program will soon be ready for introduction, reports Dr. H. A. Jones, Fruit and Vegetable Crops and Diseases. Two are in California--one is a crystal wax type adapted to the upper San Joaquin Valley, the other is a Yellow Globe for harvesting in May and June. In northern Colorado the most promising hybrid comes from a cross between the Sweet Spanish and the Southport Yellow Globe and has unusually good storage quality. The fourth prospective introduction was developed in northern New York and is a combination of early Yellow Globe lines. In tests it has consistently outyielded the parent lines.

These hybrids, like Calred, which was released in 1944, are characterized by qualities that enhance the marketing value. They are uniform in size, shape, and color.

Research in the creation of onion hybrids has gone far enough that a number of the big seed companies can now develop their own hybrid lines and crosses and they are doing this.

The work goes back to 1925 and the discovery by Dr. Jones, then at the California Experiment Station, that male sterility occurs in onions under certain conditions. He found that while normally the onion has both sexes in the same flower, in some cases the pollen grains disintegrate shortly before they mature and male sterility results. The nonfunctional anthers appear more transparent than normal ones. This pollen degeneration depends upon the interaction of a particular cytoplasm with a particular kind of gene, and both must be together in the same plant to produce male sterility.

The finding indicated a practical method for producing hybrid onion seed. When the male-sterile plants are pollinated from a fertile plant having normal cytoplasm but carrying the male-sterility gene, the entire progeny is male sterile and can be used for producing hybrid seed without the emasculation that would otherwise be necessary.

The production of hybrid onion seed differs from that of hybrid corn in this respect. At least two lines--a seed parent and pollen parent--must be carried along in corn. The hybrid onion requires three lines: an A or male-sterile line; a B-line, which is fertile and necessary to perpetuate A; and a C-line used to combine with A to produce hybrid seed. As with corn, onion lines are inbred for several generations to get uniformity and desirable characteristics.

To test for good combining ability, male-sterile lines are planted alongside a commercial type as the pollen parent. Those shown to be superior are then planted in screen cages with different inbred pollen parents to determine the best hybrid combinations. At Beltsville, trapped flies are used as the pollinators.

Only a few of the many hybrids tested hold commercial promise. Calred, the first and only introduction so far, is adapted to a small district in central California. Primarily a home garden variety, Calred is a heavy yielder, resistant to downy mildew, very mild, and does not bolt to seed readily. It is sold only to the packet trade because the seed supply is limited and the cost high. Five hundred seeds retail for \$1. This is at the rate of \$200 a pound.

All hybrid onion seed will probably be high at first, but as seedsmen pay off the cost of their equipment and other overhead the cost should not be more than two or three times that of standard varieties. Dr. Jones is certain that in time, hybrid onions will replace our present commercial varieties just as hybrid corn has replaced the old open-pollinated varieties of corn.

Urge Strengthening Research in Fertilizer Technology

Because research in the preparation of fertilizer for more effective use is of national significance, State collaborators attending the second annual meeting with the Bureau soil and fertilizer scientists recently recommended that the Bureau's work in the field be strengthened. They advised additional laboratories, equipment, and personnel, particularly for small scale and pilot-plant investigations.

The collaborators also recommended an expansion of State-Federal cooperative research on soil potash investigations, particularly with reference to fundamental investigations and technical procedures.

They further recommended that the Bureau's laboratory investigations in soil physics be increased.

Collaborators attending the meeting from the four land-grant regions were: F. E. Bear, New Jersey; E. H. Tyner, West Virginia; A. R. Midgley, Vermont; and M. B. Russell, New York from the northeast region; Eric Winters, Tennessee, W. H. Garman, Arkansas, R. W. Cummings, North Carolina, and C. D. Hoover, Mississippi from the southeast region; J. B. Peterson, Indiana, L. B. Nelson, Iowa, F. C. Bauer, Illinois, from the north central region; and D. W. Thorne, Utah, J. P. R. McHenry representing S. C. Vandecaveye, Washington, R. Gardner, Colorado, and W. T. McGeorge, Arizona, of the western region. H. P. Cooper of South Carolina attended some of the sessions.

During the 3-day program Bureau soil scientists reviewed 1948 research on radioactive materials, release of potash from soils, incidence of X disease of cattle, ureaform, phosphate technology, consumption of fertilizer and lime, and water insoluble nitrogen in tobacco fertilizers. Investigations in plant, soil, and nutrition relationships were outlined by K. C. Beeson, G. F. Somers, and G. Metrane of the United States Plant, Soil, and Nutrition Laboratory.

Native Sumac Studied As Source of Tannin

Improved methods of handling harvested sumac as a source of tannin would probably result in wider use of native stands and might also lead to cultivation of sumac on lands where it is well adapted for erosion control. These are the findings of A. F. Sievers, Tobacco, Medicinal and Special Crops, and I. D. Clark, Bureau of Agricultural and Industrial Chemistry, in a study of economic possibilities of sumac.

Native dwarf, white, and staghorn sumacs have been known as possible sources of tannin for more than a hundred years. Leaves of the first two species have been collected for commercial use in some of the Eastern States. The development of a domestic sumac industry, however, has been discouraged by the consistently higher quality of Sicilian sumac. Mr. Sievers and Mr. Clark say the high quality of the imported sumac is due mainly to greater care in handling.

The value of sumac for tanning and dyeing leather depends on (1) the tannin content and (2) the ratio of tannin to nontannin. Experiments show that domestic sumac can be used for the production of light-colored leather if it is dried rapidly either by spreading out in the sun or with artificial heat after harvesting.

Sumac dried artificially produces a desirable lighter colored leather than that dried more slowly, but the leather yield is lower and the leather has an empty or slightly tinny feel in comparison. This method, however, is preferable in regions where the weather is uncertain. Unprotected sumac will be lowered in quality or even ruined by dew or rain.

Extremely Early New Tomato Introduced

Under the name Alpine, the Bureau has recently introduced an inbred tomato line produced in the breeding work conducted at the Cheyenne Horticultural Field Station by Dr. LeRoy Powers and Dr. Donald H. Scott. Seed distribution is limited to seed companies for increase and to hybridizers.

Alpine was derived from crosses involving Danmark, Red Currant, and Early Baltimore. The fruits are about the size of those of Bounty and somewhat smaller than those of Sioux. The quality is high.

The extreme earliness makes Alpine a suitable home garden variety for the Colorado and Wyoming region and other places having a short growing season. It is planned, however, to use the new variety primarily as a parent in producing hybrids that will give high yields of early fruit. The hybrids Alpine X Sioux and Alpine X Cardinal are especially promising.

Wabash, New Soybean Variety

Seed of Wabash, a new soybean variety, has been released for increase and will be available to farmers in its adapted area--southern Indiana, southern Illinois, most of northern Missouri, and a small area in northeast Kansas--in 1950.

This new variety excels Gibson, Patoka, and Chief in yielding ability, oil content, lodging resistance, and seed quality. It grows rather erect and is easy to combine. The yellow seeds are similar to those of Gibson in size and shape. In maturity, Wabash is similar to Patoka, and it can be used to replace Patoka, Gibson, Chief, and Boone.

Wabash is a pureline selection made by A. H. Probst, Forage Crops and Diseases, and G. H. Cutler of the Purdue station. It comes from a cross between the Dunfield and Mansoy varieties. The cross was made by C. M. Woodworth of the Illinois station in 1935. L. F. Williams of the United States Regional Soybean Laboratory conducted the early generation selection and testing.

Rival, A New Mosaic-Resistant Snap Bean

Seed of Rival, the new round, green-podded snap bean released to the seed trade in 1946, is now available from several firms. The supply this spring is small, but by the end of the crop year there should be enough for widespread planting. The Bureau has no seed for distribution.

Rival comes from a cross made between U. S. No. 5 Refugee and Full Measure, followed by 10 generations of breeding and selection by Dr. W. J. Zaumeyer, at Beltsville, and the United States Potato Field Station, Greeley, Colo.

The new variety is resistant to both the common form of bean mosaic and the New York mosaic 15 that has recently become so serious in seed-growing areas of the West. It outyields Tendergreen substantially and will probably replace that variety, which it resembles in appearance. Rival has shown up most satisfactorily in canning and freezing tests.

New Theory on Host-Parasite Interaction

A hypothesis that the immune reaction in a plant does not operate until the bacteria in the intercellular spaces affect the adjoining cells is advanced by D. W. Chamberlain, Forage Crops and Diseases, and W. B. Allington, formerly of the Division but now with the Nebraska Agricultural Experiment Station.

They base this theory on data from a recent study in which they measured the multiplication of Xanthomonas phaseoli and Pseudomonas glycinea in the intercellular spaces of two host plants, a red kidney bean and a soybean. X. phaseoli is the cause of common bacterial blight in beans, and P. glycinea of bacterial blight on soybeans. Each of the parasites is considered to be nonpathogenic on one of the hosts.

The data show that the bacteria multiplied in both the susceptible and immune species at about the same rate until the second or third day after inoculation. Multiplication of P. glycinea was comparatively rapid in soybean, the susceptible host, less rapid but definite in the non-susceptible red kidney bean. The reverse was true with X. phaseoli.

Large populations of the bacteria were present in the noncongenial host when the inhibitory reaction began, either by slowing down the multiplication or stopping it altogether. Even so, substantial numbers persisted in the leaf tissues P. glycinea in the red kidney bean for 32 days and X. phaseoli in soybean 28 days after inoculation. In the congenial hosts the bacteria increased until the tissues were destroyed.

Knowledge that at least some pathogens can live and multiply in immune hosts under natural conditions has an influence upon the theories of epidemiology, the dynamics of disease resistance, and research on the adaptation of pathogens to new hosts.

Tobacco Requires Improved Fertilizers

The tremendous increase in fertilizers for tobacco production is pointed up in a survey prepared recently by A. L. Mehring.

Tobacco growers used 976,000 tons in 1948. The pounds of plant food per acre was 240 pounds, nearly triple the 65 pounds per acre, the average from 1906 to 1915. The 1948 rate consisted of 45 pounds of nitrogen, 115 pounds P_2O_5 , and 80 pounds K_2O .

Present-day fertilizer has greater efficiency, the survey shows. In recent years 1 ton of ordinary fertilizer has increased the average yield of tobacco approximately 1,100 pounds. The enlarged yield per pound of plant food applied increased from an average of 2.87 pounds of tobacco in 1906-1915 to 3.24 pounds in 1946-1947.

Data on composition of fertilizers for tobacco indicate a general trend over the last 20 years of increasing content of N, K_2O , MgO , and Cl, with a decrease in Na_2O , P_2O_5 , and SiO_2 . Recommendations by the Tobacco Work Conference to the fertilizer manufacturers call for an increase in plant food content from 18.74 in 1947 to at least 20 percent in 1949.

Now Possible to Distinguish Good Parent Lines of Sweetpotato

A milestone in sweetpotato research was noted at the annual work conference of the cooperative research group held in Baton Rouge, La., January 29 and 30. Workers agreed that as a result of nearly 10 years of crossing and progeny testing, it is now possible to recognize the identity of a number of good parent lines of this extremely heterozygous and temperamental plant. The work is emerging from the "shotgun" phase, and crosses can now be planned with some assurance of obtaining progenies of value.

Other matters considered at the conference were progress in breeding for resistance to wilt and soil rot, for high yields, wider adaptability, higher solids, starch and carotene content, and for better market and culinary qualities.

Attending the conference were technical workers who conduct research in breeding, selection, cultural, and related problems on the sweetpotato for the Bureau and the State agricultural experiment stations of Oklahoma, Kansas, Texas, Louisiana, Mississippi, Georgia, South Carolina, North Carolina, Virginia, and Puerto Rico.

High Rubber Content in Guayule Hybrids

Dr. H. M. Tysdal, who has recently taken charge of the guayule breeding project at Salinas, Calif., reports that hybrids developed from interspecific crosses show high rubber content.

The crosses were made between guayule, *Parthenium argentatum*, and *P. stramonium*, a Mexican species showing only a trace of rubber. In one-year old F_1 hybrids, more than twice as large as comparable standard strains of guayule, the percentage of rubber was only about 70 percent that of guayule, but because of the increased size of the plants, the rubber content per plant was 40 percent greater.

The hybrids reproduce apomictically. When a promising cross is obtained it can be increased immediately for production tests. Preliminary studies indicate that the hybrids maintain their superiority in vigor of growth the second year while continuing to accumulate rubber at a rate comparable with guayule.

Sunray, a New Wilt-Resistant Yellow Tomato

The Bureau has released to tomato seed growers for testing and seed increase a new golden orange tomato that is highly resistant to fusarium wilt. It is called Sunray because of the color of the fruit. Developed by W. S. Porte, at the Plant Industry Station, from a cross between Pan America and Jubilee, the new variety possesses the wilt-resistance characters of Pan America, but it closely resembles the Jubilee parent in vine and fruit. It should be especially useful where fusarium wilt is prevalent. No seed will be available for general distribution this year, and general publicity on the variety will be withheld until the results of this season's more extensive tests are known.

Fall-sown Oats More Productive in Oklahoma

The superiority of fall over spring for sowing oats in Oklahoma is shown in a cooperative study by the Bureau and the Oklahoma Experiment Station. The findings are reported by A. M. Schlehuber, Cereal Crops and Diseases, W. M. Osborn, Soils, Management and Irrigation, and T. H. Johnston of the experiment station in the bulletin, "Oat Variety and Cultural Tests in Oklahoma, 1925-1947," published by the experiment station.

Oats constitute one of the most important feed crops in the State, with an average annual production during the past 10 years of nearly 27 million bushels.

The study contains data on grain yields, average height, date ripe, test weight, and protein content of both fall- and spring-sown varieties and on winter survival of fall-sown varieties on test plots at Stillwater and Lawton. These show that fall-sown oats mature earlier, retard erosion during winter months, provide winter and early-spring pasture, and often escape serious rust damage because of early maturity. Over a 5-year period the fall-sown oats exceeded the yield of spring-sown varieties more than 28 bushels at Stillwater and nearly 49 bushels at Lawton.

Ancient Tree Can Be Propagated from Cuttings

Experiments at the Plant Introduction Garden, Glenn Dale, Md., show that the Metasequoia, an ancient Chinese redwood, can be propagated from cuttings, reports John L. Creech, Plant Exploration and Introduction. This represents a valuable gain in the efforts to prevent extinction of this ancient species.

Unknown until 1941, the Metasequoia, came into scientific news with the discovery, in the Hupeh Province, China, of fossil remains dating back to the Mesozoic era. Interest was greatly heightened in 1945 when an American botanist discovered a few living trees in the same area.

Harvard University brought seeds to the United States and distributed them to botanists in various parts of the country, including workers at Glenn Dale.

An evergreen, that like the swamp cypress is deciduous in winter, the Metasequoia grows 100 feet high. From his studies, Mr. Creech believes the species will not grow much farther north than Washington, D.C.

New Watermelon Lines Resist Breakage in Transit

Research by Fred Andrus at the United States Regional Vegetable Breeding Laboratory, Charleston, S. C. shows that breakage of watermelons in transit is closely related to the resistance of the flesh. Formerly it had been assumed that the rind was the determining factor and the harder the rind the less risk of breakage.

Mr. Andrus and his associates have developed watermelon breeding lines of high eating quality and uniformly firm flesh that appear to resist breakage better than present commercial varieties. One outstanding line tested as 46-40 has been distributed to seedsmen for test and seed increase. It will be named and introduced if preliminary findings are confirmed in extensive shipping tests to be conducted cooperatively this coming year by experiment stations, growers, and carriers.

Chrysanthemum Stunt, A New Virus Disease

Dr. Philip Brierley, in cooperation with Dr. Floyd F. Smith, Bureau of Entomology and Plant Quarantine, has proved that the stunt disease of chrysanthemums is caused by a virus that can be transmitted by grafting, by leaf rubbing, and by at least one species of aphid.

This new disease of florists' chrysanthemums was first noted in 1945 and became general in this country and Canada in the following seasons.

The disease dwarfs the plants and results in smaller and sometimes paler flowers that tend to open prematurely. In early stages it is difficult to recognize. Symptoms do not appear until $3\frac{1}{2}$ to 10 months after inoculation, a surprisingly long interval for a virus disease in a herbaceous plant. Spread is rapid in the greenhouse.

Rigid control of aphids and precautions against contamination by handling are suggested control measures for the propagator. The chrysanthemum forcer who does not propagate must be careful to buy stunt-free planting stock.

Light Traps Studied as Corn Borer Control

The attraction of light for insects is being used by engineers of the Farm Electrification Division and the Purdue Experiment Station in an attempt to control the European corn borer and other insect pests. Spotted around cornfields, the experimental lamps attract moths to electrically charged screens on which they are killed.

The tests show that the near ultraviolet type of radiation, called "black light" because it is not visible to the human eye, holds the strongest attraction for the corn borer moth and also for two other crop pests, the corn earworm moth and the tomato hornworm moth. Preliminary results indicate that the greater the intensity of radiation, the greater the attraction for moths.

In addition to killing the moths, the traps provide a key to the progress of the moth flight. This is a help in timing spray applications for maximum destruction by poison.

Display Features Improved Varieties

An attractive display featuring 17 improved varieties of cereals recommended for Montana has been on display in the lobby of the administration building at Plant Industry Station for the past 30 days.

The display was arranged by Ralph M. Williams, superintendent of the Judith Basin (Mont.) Branch Station at Moccasin.

Three of the spring wheats--New Turk, Yogo, and Kurmont--come from selections made at the experiment station nurseries. Other wheat varieties in the display are Thatcher, Rescue, Wasatch, Pilot, and Ceres. Other cereals in the exhibit are Arrow, Dakota and Renew flax, Bridger, Mission, and Gopher oats, and Compana, Glacier, and Titan barley.

Toxicity Studies Expanded

The Bureau's research on the plant toxicity of DDT and other organic insecticides has been expanded to include a laboratory project in Soil Management and Irrigation. The new study, financed by RMA funds, is designed to determine the change, if any, that the insecticides undergo when incorporated into various soils.

S. B. Hendricks and H. T. Hopkins will study the effects of liming and organic matter on crop response at different levels of DDT on different soils. Where possible, they will use isotopic tracers of chlorine and carbon to obtain sensitive measurements of the rate at which the insecticides decompose.

This research will be tied in closely with the work on this problem by A. C. Foster, M. C. Goldsworthy, and D. F. Fisher and associates (Fruit and Vegetable Crops and Diseases). In their findings the generally unpredictable and often surprising plant responses observed suggest that numerous and obscure factors are involved in complex relationships.

The two divisions will collaborate closely in the conduct of certain phases of their respective tasks and will work jointly upon other phases.

Future Needs in Weed Control Research

Appraising future needs in weed control research, L. W. Kephart, Cereal Crops and Diseases, places emphasis on studies to:

(1) Control perennial grasses, annual grasses in special crops, ragweeds and other allergy weeds growing in valuable susceptible crops, aquatic weeds in still waters, and woody plants.

(2) Sterilize soil for nonagricultural uses, such as railroad rights-of-way, river bank revetments, and air strips. In Mr. Kephart's opinion this calls for a well-financed research project featuring biochemical rather than the purely chemical approach.

(3) Eradicate weed seeds in soil.

(4) Understand physiological action of herbicides in plants.

(5) Analyze cropping systems that control weeds.

These are weed problems, says Mr. Kephart, for which ordinary good farming does not suffice and for which scientific help is really needed. Such research will utilize all the resources that at present seem likely to be available.

Electric Heat for Beehives

The possibility of using electrically heated hives to prevent winterkilling of bees in northern climates is under study at Madison, Wis., by engineers of the Farm Electrification Division in cooperation with Bureau of Entomology and Plant Quarantine.

They are testing various installations to determine the best size and shape of heaters and the proper location in relation to bee movements within the hive in cold weather.

Another phase of their investigations concerns the type of thermostatic control best suited for both winter and spring heating. Extra warmth may prove as important during cold snaps in spring as in winter. Strong colonies of healthy young bees early in the season mean greater honey production and more thorough pollination of fruit and legume blossoms.

Bureau Biometrician Appointed

The increasing need for full-time service and research in problems of experimental design and statistical analysis of research data has led to the appointment of Dr. David D. Mason as Bureau biometrician. He will head up the statistical unit of the Chief's staff at Beltsville.

Dr. Mason comes from Columbus, Ohio. For the past 2 years he has served on the staffs of the State university and experiment station, teaching experimental design and soil classification, acting as consultant in these subjects to graduate students and staff members of the university, and conducting research in these fields for the experiment station.

While a graduate student at the Institute of Statistics of the University of North Carolina, Dr. Mason served as a Bureau agent. He conducted a study of the relationship between soil, weather, growth, and yield of cotton and tobacco by use of detailed measurements and application of advanced biometrical techniques.

He is a native of Virginia, holds a BS from King College, Bristol, Tenn., an MS from Virginia Polytechnic Institute, and a PhD from the University of North Carolina. During the war, Dr. Mason was a chief warrant officer with a soil engineering section and served with the Army in New Guinea and Australia.

Garrison To Direct Grass and Legume Seed Program

Carlton S. Garrison of New Jersey has been named to direct the Bureau's part in the new Federal-State program being set up to increase grass and legume seed of the improved varieties.

A member of the staff of the Division of Forage Crops and Diseases, Mr. Garrison will work closely with State experiment stations and extension agronomists, crop improvement associations and cooperating agencies in the Department. The program is designed to establish an adequate supply and to insure a continuous flow of seed of the new varieties just as there now is in hybrid corn. Foundation seed stocks of Kenland red clover, Atlantic alfalfa, and Tift Sudan grass will be increased this year.

Mr. Garrison comes to the Bureau from the New Jersey Extension Service where he has been specialist in farm crops since 1937. A native of Delaware, he is a graduate of Delaware University and holds an MS degree from Michigan State College.

Jeffrey Joins Tobacco Division

Dr. Robert N. Jeffrey, formerly head of the chemical division of the research department of the Firestone Plantation Co., Liberia, West Africa, has joined the staff of the Division of Tobacco, Medicinal, and Special Crops at Beltsville. Prior to his work in Africa he was plant physiologist at the Kentucky Agricultural Experiment Station, working on burley tobacco. At Beltsville he will conduct research on the physiology of the tobacco plant and relationship between chemical composition and quality in cigarette tobacco.

Briefs

Roy B. Gray, Farm Machinery, has been awarded the decoration "Officier du Merite Agricola" by the French Minister of Agriculture in recognition of his services to agriculture.

Dr. F. J. Hermann, Plant Exploration and Introduction, has been appointed one of the board of editors of the Journal of the Washington Academy of Science.

Dr. J. O. Ware, Cotton and Other Fiber Crops and Diseases, spent the first 2 weeks in March in Puerto Rico inspecting test plots of cotton collected last year in Guatemala and Mexico.

Deaths

Dr. William Alton Taylor, retired chief of the Bureau, in Columbus, Ohio, February 9, at the age of 85.

Born in Chelsea, Mich., Dr. Taylor received a BS from Michigan State College in 1888, and after managing a fruit farm and nursery for 3 years entered the service of the Department in 1891 as an assistant pomologist.

He remained with the Department for the next 42 years, becoming pomologist in charge of field investigations in 1901 and in 1909 conducting an agricultural exploration of the Canal Zone. He was assistant chief of the Bureau of Plant Industry from 1910 until appointed head of the Bureau in 1913, a post he held for 20 years before his retirement on December 30, 1933.

During Dr. Taylor's regime the Bureau developed many new varieties and strains of plants that could be grown under adverse pest and climatic conditions, introduced crops from other countries and adapted them to commercial production in the United States.

Dr. Lee Hutchins represented the Bureau at the funeral service held in Columbus.

Keep Designation of Beneficiary Up To Date

Do your Civil Service papers carry the name of the person you wish to benefit from your estate?

If you have not already designated a beneficiary, you should do so by filling out CSC Form 2806-1 and filing it with the Civil Service Commission, points out J. P. McAuley, acting personnel officer.

A change in family status often calls for a change in the designation of a beneficiary. Like the original designation, the change should be made on Form 2806-1. If you wish merely to cancel a prior designation without naming any particular beneficiary, insert the words, "To my estate," in the space provided for the name of a beneficiary.

Copies of Form 2806-1 may be obtained from the Personnel Division.

Budget Bureau Estimates for 1950

Bureau officials appeared before the Congressional subcommittee on appropriations for the Department, February 7, to testify on 1950 budget estimates.

A summary of these estimates compared with funds available for 1940 and the current fiscal year shows:

	<u>1940</u>	<u>1949 a/</u>	<u>1950 Estimates</u>	<u>Net changes from 1949</u>
Salaries and expenses.....	\$5,708,064 <u>b/</u>	\$8,900,470 <u>b/</u>	\$8,596,000	-\$304,470
Allotments and transfers.....	<u>519,721</u>	<u>2,600,800</u>	<u>3,182,500 c/</u>	<u>+ 491,700</u>
Total BPISAE	\$6,227,785	\$11,591,270	\$11,778,500	+\$ 187,230

a/ Includes budget allowances for \$330 pay increase effective July 1, 1948.

b/ Adjusted for comparison with 1950 budget estimates.

c/ This does not include certain advances from other agencies, such as the advance from the Atomic Energy Commission for research with radioactive materials in soil and plant studies.

A breakdown of the net increase is as follows:

	<u>Salaries expenses</u>	<u>Allotments and transfers</u>	<u>Total</u>
Program increases.....	+\$357,000	+\$672,610 <u>a/</u>	+\$1,029,610
Net reduction for nonrecurring items..	- 505,500	- 173,710	- 679,210
Absorption of pay act costs	- 155,970	- 7,200 <u>b/</u>	- 163,170
Net change.....	-\$304,470	+\$491,700	+\$ 187,230

a/ Includes tentative allotments from Research and Marketing Act funds.

b/ Pay Act costs under RMA funds were entirely absorbed in 1949.

Absorptions required to meet Pay Act costs and within-grade salary promotions for which no allowances were approved in the budget estimates make it necessary to curtail or discontinue certain lines of work. For Pay Act costs these include \$182,000 in 1949 and \$163,170 for 1950 and an estimated absorption of \$210,000 for in-grade salary advances in 1949 and 1950.

The final amount available for 1950 will, of course, not be known until appropriations have been passed in Congress and allotments and transfers made.

 * PUBLICATIONS *

Departmental

Farmers' Bulletin 1741 (Rev.)	Bur-Clover Cultivation and Utilization
Farmers' Bulletin 1999	Production of Drug and Condiment Plants
Farmers' Bulletin 2001	Producing Cigar Tobacco in Pennsylvania
Circular 798	Moldy Rot of Tapping Panels of Hevea Rubber Trees

Recent Articles in Outside Publications

Authors of research articles in outside journals are urged to report actual publication promptly to their Division representative. Indicate the precise authorship, title, periodical, and date of the issue containing the article. This is the only way we can keep a current and complete list of publications.

Atkins, R. E., and Murphy, H. C. Evaluation of Yield Potentialities of Oat Crosses from Bulk Hybrid Tests. Agron.Jour., January 1949.

Bartel, A. T., Cords, H. P., and Aepli, D. C. Improved Arivat. Ariz. Farmer, November 1948.

Bever, W. M., and Slife, F. W. Effect of 2,4-D in Culture Medium on the Growth of Three Pathogenic Fungi. Phytopathology, December 1948.

Cash, E. K. Six New Indian Discomycetes. Mycologia, December 1948.

Childers, L. E. Problems of Fertilizer Application. Farm Implement News December 1948. (Notes on papers as presented at annual meeting of Nat. Joint Com. on Fert. Application.)

Creech, J. L. Philadelphus Notes (Species of Merit). Natl. Hort. Mag., January 1949.

Creech, J. L. Propagation of Metasequoia by Juvenile Cuttings. Science, December 1948.

Dickson, A. D., Shands, H. L., and Burkhart, B. A. Influence of Growth-Regulation Chemicals on the Malting of Barley and the Composition of Malt. Cereal Chem., January 1949.

Finney, K. F., Heizer, H. K., Shellenberger, J. A., Bode, C. E., and Yamakazi, W. T. Comparison of Certain Chemical, Physical, and Baking Properties of Commercial, Buhler, and Hobart-Milled Flours. Cereal Chem., January 1949.

Hahn, G. G. Evidence of the Non-Existence of Physiological Races in Cronartium ribicola. Phytopathology, January 1949.

Hienton, T. E. Research in Farm Electrification. Rural Electrification, February 1949.

- Hoppe, P. E. Difference in Pythium Injury to Corn Seedlings at High and Low Soil Temperatures. *Phytopathology*, January 1949.
- Jenkins, M. T. The Hybrid Corn of Tomorrow. What's New in Crops and Soils, November 1948.
- Lentz, P. L. Some Species of *Cyphella*, *Solenia*, and *Porothelium*. *Iowa Acad. Sci. Proc.*, 1947 (published in January 1949).
- McKinney, H. H. Wheats Immune from Soil-Borne Mosaic Viruses in the Field, Susceptible when Inoculated Manually. *Phytopathology*, December 1948.
- McNeal, F. H. Effect of 2,4-D on the Yield and Height of Federation Wheat. *Amer. Soc. Agron. Jour.*, December 1948.
- Meehan, F., and Murphy, H. C. Septoria avenae on Oats in Iowa. *Phytopathology*, January 1949.
- Murphy, H. C. There'll be More 'New Oats.' *Iowa Farm Sci.*, December 1948.
- Reed, I. F., and Berry, M. O. Equipment and Procedures for Farm Tractor Tire Studies under Controlled Conditions. *Agri. Engin.*, February 1949.
- Salmon, S. C. Crop Improvement in Japan. *Amer. Soc. Agron. Jour.*, November 1948.
- Sartoris, G. B., and Belcher, B. A. The Effect of Flooding on Flowering and Survival of Sugarcane. *Facts About Sugar*, January 1949.
- Schlehuber, A. M. Widespread Occurrence of Supernumerary Spikelets in Common Wheat. *Agron. Jour. (Note)*, January 1949.
- Sears, E. R., and Rodenhiser, H. A. Nullisomic Analysis of Stem-Rust Resistance in *Triticum vulgare* var. *timstein*. *Genetics* 1948.
- Shear, C. L. *Mycological Notes. IX. Mycologia*, December 1948.
- Sprague, G. F., and Brimhall, B. Quantitative Inheritance of Oil in the Corn Kernel. *Agron. Jour.*, January 1949.
- Stanton, T. R., and Murphy, H. C. New Oat Varieties Make Good in 1948. What's New in Crops and Soils. February 1949.
- Toole, E. R., and Hepting, G. H. Selection and Propagation of *Albizia* for Resistance to *Fusarium* Wilt. *Phytopathology*, January 1949.
- Turner, A. W. Sees Big Market for Crop Driers. *Farm Equip. Retailing*, February 1949 (Excerpts from address before Natl. Farm Electrification Conf.)
- Ullstrup, A. J., and Tucker, C. M. The Occurrence of *Phytophthora parasitica* on Corn. *Phytopathology*, December 1948.
- Wagener, W. W. Top Dying of Conifers from Sudden Cold. *Jour. Forestry*, January 1949.